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Environmental Impact Assessment Record of Determination

A68 Galadean Bridge Deck Refurbishment

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out deck refurbishment works on the A68 Galadean Bridge. The works will consist of a number of activities on the bridge deck including asphaltic plug joint replacement, waterproofing replacement, concrete repairs on deck, reinstatement of the footpath and service ducts including kerbing, service rerouting, drainage improvements, and resurfacing and road marking reinstatement. The works will be approximately 50m in length with an area of approximately 0.1ha.

Construction activities for the works are as follows:

- Set up traffic management (TM) and mark out site.
- Milling of carriageway surfacing down to deck level, removing kerb units and excavation of footways.
- Undertake hydro-demolition, where required, to assist with concrete break-out.
- Carry out concrete repairs on deck with proprietary repair mortar.
- Install new spray-applied waterproofing membrane to bridge deck, overlapping it onto existing waterproofing.
- Reinstate footways, services and install new kerbs.
- Lay carriageway surfacing.
- Remove TM and open lane.
- Repeat on the other lane.

The works are programmed to be completed within the 2025/2026 financial year with works currently expected to commence at the end of September 2025. Works are programmed to be completed over approximately thirty nights (19:30 – 06:00). Traffic management (TM) will involve alternating lane closures with temporary traffic lights. Full road closures will be utilised if and when required. If a full road closure is required, southbound traffic will be diverted onto the A697 at Carfraemill Roundabout, then onto the A6089 at Whiteburn, then the A6105 at Gordon, and finally returning to the A68 at Earlston. Northbound traffic will follow the inverse route.

Location

The works are located on the A68 Galadean bridge structure, which spans the Leader Water, a tributary of the River Tweed, approximately 4.5km north of the

village of Earlston within the Scottish Borders (Figure 1.). The National Grid Reference (NGR) of the bridge structure is NT 55860 42895.

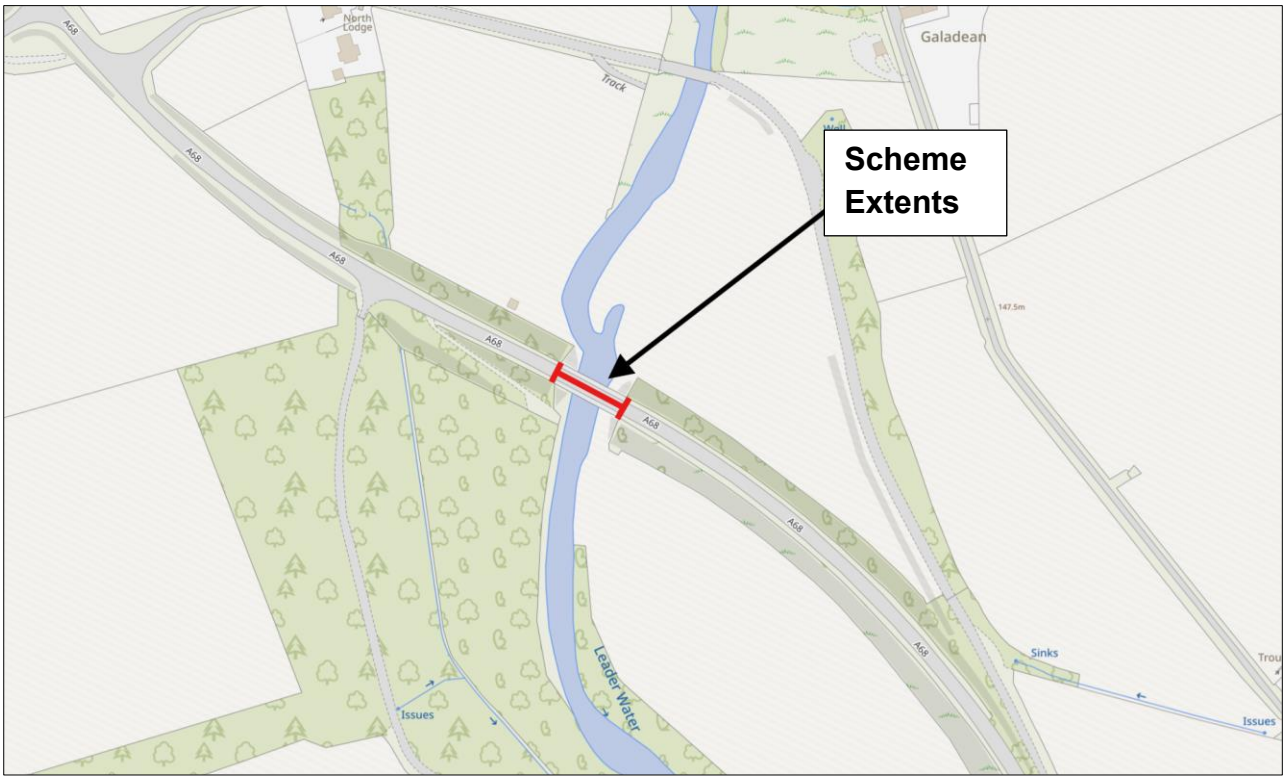

Figure 1. Extents of the Works. - Source: Asset Management Performance System (AMPS). © Europa Technologies Ltd. Contains Ordnance Survey data © Crown copyright and database right 2018.

Description of local environment

Air quality

For properties within 300m of the scheme refer to “Population and Human Health”.

A search of the Air Quality in Scotland online mapping tool records that air quality monitoring sites in the wider area record bandings to be within the ‘green zone’ (Low Index 1-3).

The scheme extents are located within the Scottish Borders council boundary which declares no Air Quality Management Areas (AQMAs) within its administrative boundary. The closest AQMA, ‘Musselburgh High Street’, is located approx. 36.2km northeast of the scheme extents and is declared for nitrogen dioxide (NO_2).

There are seven sites registered on the Scottish Pollutant Release Inventory (SPRI) for air pollutant releases within 10km of the scheme extents, within the last 10 years (Scottish Pollutant Release Inventory):

- Addistone Poultry Farm, Earlston – declared for Ammonia, particulate matter (PM_{10} and smaller), particulate matter (total).
- Cottage Wood Poultry Farm, Earlston – declared for Ammonia.
- Easter Langlee Landfill Site, Galashiels – declared for Chlorofluorocarbons, hydrochlorofluorocarbons, methane, methyl chloroform.
- Galashiels STW, Winston Road, Galashiels – declared for Methane.
- Springfield Poultry Farm - declared for Ammonia.
- Standingstone Poultry Farm, Earlston - declared for Ammonia.
- West Morriston Free Range Poultry, Earlston - declared for Ammonia.

The closest of these is Cottage Wood Poultry Farm, Earlston which is located approximately 3.65km east of the scheme extents.

Baseline air quality within the scheme extents is likely to be primarily influenced by traffic along the A68 carriageway. Secondary sources are most commonly derived from motor vehicles travelling along local network roads and day-to-day agricultural land management activities.

Cultural heritage

The PastMap and Historic Environment Scotland (HES) online mapping tools record one listed building within 300m of the scheme extents. The “Old Bridge, Galadean” is

a Category B listed building located approximately 275m north of the scheme extents.

There are no other designated cultural heritage sites located within 300m of the scheme extents.

Twelve undesignated cultural heritage assets (UCHAs) are found within 300m of the scheme extents. The closest of these lies approximately 175m northeast of the scheme extents and relates to the “Galadean” National Record of Historic Environment (NRHE) and Historic Environment Record (HER) sites (ID: 110533).

Construction of the A68 is likely to have removed any archaeological remains that may have been present within the trunk road boundary. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low.

Given that the works will be restricted to the existing boundary and depth of the A68 carriageway they will not be at risk of impacting any unknown archaeological remains if present in the surrounding area. Therefore, there is no potential for impacts to cultural heritage from the proposed works and this topic has been scoped out of further environmental assessment.

Landscape and visual effects

The scheme is not located within a National Park (NP) or National Scenic Area (NSA) (SiteLink).

The Landscape Character Type (LCT) within the scheme extents is categorised as “Pastoral Upland Fringe Valley” (LCT 117) (Landscape Character Type Map), the key characteristics of which are:

- Medium scale pastoral valley with flat floor enclosed by upland fringe pastures, often with rough grassland and moorland covered hills above.
- Smooth large-scale landform modified in places by bluffs and moraine on valley floor, scree slopes or rock outcrops on valley sides.
- Narrow, often wooded tributary side valleys.
- Broadleaf woodlands and scrub on bluff slopes and scattered trees along riverbanks, occasional coniferous plantations and shelterbelts on valley sides.
- Valley floor pastures enclosed by drystone dykes with occasional hedgerows, interspersed with occasional patches of scrub, coarse grass and rushes.
- Scattered villages, farmsteads and mansion houses with policy woodlands.

The Historic Land-use Assessment (HLA) classifies the land-use surrounding the scheme as “Rectilinear Fields and Farms” in the immediate vicinity of the scheme, with the wider land use classified as Designed Landscape.

The national scale land capability for agriculture classifies land surrounding the scheme as being class 3.2 which indicates land capable of average production though high yields of barley, oats and grass can be obtained. Grass leys are common.

There is one area of native woodland (Native Woodland Survey) within 300m of the scheme extents. It is a 1ha area of mature lowland mixed deciduous woodland, which is located approximately 270m north of the scheme extents at its closest point. There is also an area of non-native woodland located approximately 35m west of the scheme extents. It is a 1.53ha area of mixed maturity wet woodland.

There are no areas of ancient woodland (Ancient Woodland Inventory), or any trees or areas of woodland with a Tree Preservation Order (TPO) (Scottish Borders Council) within 300m of, or that share connectivity with the scheme extents.

The existing trunk road is a prominent linear landscape feature. The trunk road corridor, for example, has a distinct character shaped by fast-flowing traffic, road markings, safety barriers, signage, landscaping, etc. The scale of the trunk road detracts from the quality and character of the wider landscape

Biodiversity

The River Tweed Special Area of Conservation (SAC) (ID: 8369) is spanned by the A68 within the scheme extents.

There are no other European Sites designated for nature conservation i.e. Special Protection Areas (SPA), Special Areas of Conservation (SAC), or Ramsar Sites, located within 2km of the scheme extents. However the scheme is located within the buffer zones of the qualifying species for Fala Flow SPA (ID: 8497) and Ramsar Site (ID: 8423) and Greenlaw Moor SPA (ID: 8509) and Ramsar site (ID: 8427).

There are no Sites of Special Scientific Interest (SSSIs), Local Nature Conservation Sites (LNCS), or Local Nature Reserves (LNRs) designated for biodiversity features within 300m of, or which share connectivity to the scheme.

The National Biodiversity Network Atlas (NBN Atlas) holds records of numerous bird species within 2km over a ten-year period. Under the Wildlife and Countryside Act 1981 (as amended), all wild birds and their active nests (typically active March to August inclusive) are protected. No other species of conservation importance were

recorded within 2km of the scheme, in the last 10 years. Only records with open-use attributions (OGL, CCO, CC-BY) were included in the search criteria.

The NBN atlas holds the following records of invasive and injurious plants (as listed in the Network Management Contract (NMC)):

- Japanese knotweed (*Reynoutria japonica)*.

This record is located approximately 235m south of the scheme extents.

A search of the Asset Management Performance System (AMPS) online mapping tool records no injurious weeds, invasive native perennials, or invasive non-native species (INNS) within the scheme extents.

The habitat immediately bordering the A68 carriageway within the scheme extents consists primarily of dense broadleaved riparian woodland, broadleaved trees bordering the A68 carriageway, rough grazing grassland, and managed grass verges. In addition, Leader Water is spanned by the A68 within the scheme extents which is likely to offer suitable habitat for a number of species.

An ecological constraints survey, inclusive of Preliminary Roost Assessment (PRA) was conducted by the BEAR Scotland Environment Team at A68 Galadean Bridge on the 5th of February 2025. The area surrounding the scheme extents was investigated for any field signs of protected species, any invasive non-native species (INNS), invasive native perennial plants, or injurious weeds.

The habitat surrounding the scheme extents consists of rough grazing land and some dense woodland made up primarily of silver birch (*Betula pendula*), sycamore (*Acer pseudoplatanus*), and semi-mature oak (*Quercus* sp.), with arable farmland in the wider vicinity of the scheme extents. Within the immediate vicinity of the bridge, several plant species of note were identified. A large stand of the INNS rhododendron (*Rhododendron ponticum*) was identified at the southwest side of the bridge. Of lesser concern, the injurious weeds creeping thistle (*Cirsium arvense*), and invasive native perennial rosebay willowherb (*Chamaenerion angustifolium*) were identified within the vicinity of the scheme extents.

Several birds' nests were identified within the steelwork on the underside of Galadean Bridge. It is unknown if the nests are active. Additionally, the surrounding habitat (woodland) is highly suitable for nesting birds.

Geology and soils

There are no geological SSSIs or Geological Conservation Review Sites within 300m of the scheme extents (SiteLink). Additionally, there are no Local Geodiversity Sites (LGS) with connectivity to the scheme extents

The generalised and major soil groups in the scheme extents are classified as "mineral alluvial soils with peaty alluvial soils" (Scotland's Soils). The Carbon and Peatland 2016 map shows soils in the scheme area have a carbon and peatland class of 0, indicating mineral soils in which peatland habitats are not typically found (Scotland's Soils).

Bedrock within the scheme extents is classified as "Great Conglomerate Formation – Conglomerate and sandstone, interbedded" with superficial deposits of "alluvium – silt, sand, and gravel".

There is no evidence of historical industrial processes or the storage of hazardous materials that could have given rise to significant land contamination.

Given the restriction of the works to the A68 carriageway boundary, and the lack of any earthworks, local geology and soils are unlikely to be affected by the proposed works. Therefore, geology and soils has been scoped out of further environmental assessment.

Material assets and waste

The proposed works are required due to the poor condition of the bridge deck. The materials used will consist of:

- Bitumen,
- Asphalt,
- Aggregates,
- Cover plates and caulking,
- Concrete,
- Backfill,
- Kerbs,
- Service Ducts,
- Spray-applies seamless MMA waterproofing, and
- Manhole covers.

The scheme is executed by the operating company as site operations e.g. 'As-of-Right' scheme value is less than £350,000. As a result, a Site Waste Management Plan (SWMP) is not required.

The 50m scheme involves full refurbishment of the bridge deck on the A68 Galadean Bridge. The main waste products will be old rail joint material (17 04 05 iron and steel), defective concrete and kerbs (17 01 01 concrete), and carriageway/footway planings (17 03 02 bituminous mixtures other than those mentioned in 17 03 01). None of which is considered hazardous.

Noise and vibration

There are residential properties within 300m of the scheme extents. For further details see “Population and Human Health”.

The works do not fall within a candidate noise management area (CNMA) as defined by the Transportation Noise Action Plan (TNAP).

The night-time noise levels (Lnight) modelled within the scheme extents ranges between 50 and 60 decibels (dB), dropping to between 35 and 45dB at the nearest sensitive receptor (residential) (Noise Map Viewer).

Baseline noise and vibration in the study area is mainly influenced by vehicles traveling along the A68 trunk road. Secondary sources are derived from vehicles travelling along nearby local network roads

Population and human health

There are two residential properties within 300m of the scheme extents. The closest property lies approximately 205m northwest of the scheme extents. It is well screened from the scheme extents due to the dense roadside treeline. The other property, located approximately 260m northeast of the scheme extents, receives partial screening from the scheme extents due to vegetation coverage and the topography of the land, however there are sightlines to the property from the scheme extents.

There are no footpaths, laybys, local access roads, or street lighting within the scheme extents.

There are no core paths within 300m of the scheme extents (Scottish Borders Council). There is one recognised “Right of Way” footpath which is located approximately 125m west of the scheme extents at its closest point.

The A68, within the scheme extents, is a single carriageway with a maximum speed limit of 60mph applying throughout. The Average Daily Traffic (ADT) is low (7,036 motor vehicles (ID: ATC07030, 2023 data)) (Drakewell Traffic) and is comprised of:

- 66 Motorcycles
- 5,826 Cars
- 92 Cars with Trailers
- 836 Rigid Lorries
- 187 Articulated Lorries
- 29 Buses and Coaches

Road drainage and the water environment

There is one classified waterbody within 300m of the scheme extents (SEPA). “Leader Water/Kelphope Burn (Cleekhimin Burn confluence to River Tweed) (ID: 5266) is a river in the River Tweed catchment area. It runs broadly north to south, passing below the scheme extents. It has a main stem approximately 23.2km in length and was classified as having “Moderate ecological potential” by SEPA in 2023.

Also within 300m of the scheme extents are three unclassified drainage waterbodies, the closest of which lies approximately 80m west of the scheme extents. These waterbodies are too small (in terms of catchment area) to be classified as a main stem waterbody by SEPA under the WFD.

A search of the SEPA Flood Map online mapping tool shows that there are no areas of increased flood risk within the scheme extents.

The scheme extents lie within the Lauder groundwater basin (ID:150539). It was rated as having a “Good” status by SEPA in 2023. It is a Drinking Water Protected Area. (SEPA).

A search of the Scotland's Environment (SE) determined that the trunk road, within the scheme extents, does not lie within a Nitrate Vulnerable Zone (NVZ)

Climate

The Climate Change (Scotland) Act 2009 (‘The Act’), and its subsequent amendment under the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, sets the framework for the Scottish Government to address climate change. The Act has an ambitious target to reach Net Zero greenhouse gas emissions by 2045, with any residual emissions balanced by removing carbon dioxide from the atmosphere. This is five years earlier than the rest of the UK due to the greater potential for carbon sequestration in Scotland.

The Act was amended to replace interim targets with carbon budgets. Carbon budgets are legally binding caps on greenhouse gas emissions in Scotland over five-

year periods. In line with the Act, the Climate Change Committee (CCC) published advice on the level of Scotland's four carbon budgets, covering the period 2026 to 2045, recommending what the Scottish Government sets its carbon budgets at for annual average levels of emissions. These recommendations are based on an ambitious but credible route to Net Zero for Scotland by 2045.

Emissions reductions from surface transport are the largest contribution to meeting the first two carbon budgets. The pathway for surface transport emission reduction is primarily driven by the uptake of electric vehicles, in addition to measures to enable a shift from car use to public transport and active travel, which all play a role in reducing emissions from fossil fuel cars. Ensuring efficiency of existing transport infrastructure and improving/providing new active travel facilities is therefore important to support these carbon reduction budgets.

Transport is the largest contributor to harmful climate emissions in Scotland. In response to the climate emergency, Transport Scotland are committed to reducing their emissions by 75% by 2030 and to the above noted legally binding target of net-zero by 2045. Transport Scotland is committed to reducing carbon across Scotland's transport network and this commitment is being enacted through the Mission Zero for Transport (Mission Zero for transport | Transport Scotland).

Policies and plans

This Record of Determination has been undertaken in accordance with all relevant regulations, guidance, policies and plans, notably including the Environment and Sustainability Discipline of the Design Manual for Roads and Bridges (Design Manual for Roads and Bridges (DMRB)) and Transport Scotland's Environmental Impact Assessment Guidance (Guidance - Environmental Impact Assessments for road projects).

Description of main environmental impacts and proposed mitigation

Air quality

During the construction phase, activities undertaken on site could potentially have some minor localised and short-term air quality impacts in proximity to the works. The construction phase will, for example, require a range of ancillary plant, vehicles, and non-road mobile machinery (NRMM) which will contribute to local dust and air pollutants. The main sources are likely to be dust generated by cold milling in preparation of carriageway resurfacing and joint removal, as well as exhaust emissions from ancillary plant and vehicles. As a result, there is potential for impacts to local air quality.

However, considering the nature and duration of the scheme, along with implementation of mitigation detailed below, the proposed works' impacts on local air quality levels during the construction period are assessed to be temporary, negligible adverse in magnitude.

Upon completion of the works, no residual air quality impacts are anticipated.

Air quality mitigation measures:

- The carriageway will be swept after dust-generating activities, and waste will be contained and removed from site as soon as is practicable.
- Ancillary plant, vehicles and NRMM will have been regularly maintained, paying attention to the integrity of exhaust systems.
- Ancillary plant, vehicles and NRMM will be switched off when stationary to prevent exhaust emissions (e.g., there will be no idling vehicles).
- Materials that have a potential to produce dust will be removed from site as soon as possible.
- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when there is potential for dust, particulate matter, and exhaust emissions to be emitted to the atmosphere. In the unlikely event that unacceptable air pollutants are emanating from the site, the operation will, where practicable, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include: (a) minimising reducing the operating hours, (b) changing the method of working, etc.

Landscape and visual effects

There will be a short-term impact on the landscape character and visual amenity of the site as a result of the presence of construction plant, vehicles, and TM. However, people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground on the A68, and construction works are programmed to be undertaken at night (approx. 30 nights). As such, the visual impact of the works will be somewhat reduced.

Considering the nature, duration, size, and scale of the scheme, and with implementation of mitigation detailed below, impacts on landscape and visual effects are assessed as temporary, negligible adverse in magnitude.

Upon completion of the works, no residual impacts on landscape and visual effects are anticipated e.g., when complete the visual appearance will remain largely unaffected, with a renewed road surface and minor visual changes to the bridge being the only discernible changes.

Landscape and visual effects mitigation measures:

- The site will be monitored regularly for signs of litter and other potential contaminants, and litter will be removed before and after works take place.
- The site will be left clean and tidy following construction.
- Where possible, construction vehicles will not be left in places where soil or vegetation can be damaged. If damage to road verge occurs this will be lightly cultivated or graded (upon completion of the works) to allow natural recolonization by local species and promote integration with existing landscape character

Biodiversity

A Habitats Regulations Appraisal (HRA) screening has been undertaken which ruled out the potential for Likely Significant Effects (LSE) on the qualifying features of the Fala Flow SPA and Ramsar Site and Greenlaw Moor SPA and Ramsar Site due to the restriction of the works to the existing A68 carriageway, along with the distance separating the works from the designated sites. However, due to the works spanning the River Tweed SAC the HRA could not rule out the potential for Likely Significant Effects (LSE) on the River Tweed's SAC qualifying features. An Appropriate Assessment (AA) was therefore undertaken which concluded that following the implementation of mitigation measures the works would not result in an adverse effect on site integrity (AESI) to any of the qualifying features.

A large stand of the INNS rhododendron was identified within the vicinity of the scheme extents along the banks of Leader Water. The works will be restricted to the A68 carriageway as far as reasonably practicable. Further, no earthworks or vegetation removal is required. As such, the risk of impacts related to the spread of INNS are considered to be negligible.

Considering the nature of the scheme, and with implementation of mitigation detailed below, the proposed work impacts on biodiversity throughout the construction period are therefore assessed to be temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to biodiversity.

Biodiversity mitigation measures:

- Leader Water is designated under the River Tweed SAC (EU Site Code UK0012691). As such all personnel will be made aware of the sensitivity and protected status of the River Tweed SAC.
- No works will be permitted on site until the Habitats Regulations Appraisal has been approved by Transport Scotland and consulted on with NatureScot. All mitigation measures detailed within this assessment will be strictly adhered to on site.
- Artificial lighting will be sufficiently screened and aligned so as to ensure that there is no direct illumination of neighbouring habitat (e.g., Leader Water, woodland etc.) to ensure minimal impact on nocturnal species.
- If protected animal species are encountered during the works, work will cease temporarily until such time that the animal has left the visible works area. BEARs Environmental Team will be notified of any protected species sightings.
- The works are not permitted to disturb or destroy any active birds nests. If an active birds nest is identified onsite that will be impacted by works, BEAR Scotland's Environmental Team will be contacted.
- All site workers will have received adequate training relevant to their role prior to working on the site, including specific environmental inductions and 'toolbox talks' as required.
- The Contractor will employ 'soft start' techniques for all noisy activity to avoid sudden and unexpected disturbance during works. Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to permit animals (including birds) to move away from the disturbance.
- All equipment stored onsite, if necessary, will be checked at the start of each workday to ensure mammal species are not present. Any storage containers/plant within the compound will also be secured overnight to

prevent exploration by mammal species. Any areas where an animal could become trapped (e.g., storage containers) will also be covered at the end of each working day.

- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). Where access is required, it should be limited as much as is possible, and ideally be restricted to individuals accessing on foot. If during works unforeseen access to the surrounding environment is required, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.
- BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects if:
  - unforeseen site clearance is required, outwith that already planned,
  - unplanned works will be undertaken out with the carriageway boundary,
  - there is any deviation from the agreed plan, programme and/or method of working,
  - nesting birds are found within the active working areas.
- BEAR Scotland's Control Room will be contacted if there is a pollution incident.

Material assets and waste

The scheme is executed by the operating company as site operations e.g. 'As-of-Right' scheme value is less than £350,000. As a result, a Site Waste Management Plan (SWMP) is not required.

Minimising impacts arising from construction materials are focussed upon making the most efficient use of materials onsite to reduce the need for imported primary materials and minimise the creation and disposal of waste through (i) reduction, (ii) re-use, and (iii) recycling. Potential impacts have been assessed for both the construction and operational phases of this scheme. It is anticipated that most material impacts are likely to arise during construction, though long-term residual impacts could occur post construction during the operational phase e.g., during the disposal of materials arising from routine maintenance operations.

Considering the nature of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on material assets and waste throughout the construction period are therefore assessed to be temporary negligible adverse in magnitude. Upon completion of the works, no residual impacts are anticipated for materials assets or waste.

Material assets and waste mitigation measures:

- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- The Contractor will comply with all 'Duty of Care' requirements, ensuring that any surplus materials or waste are stored, transported, treated, used, and disposed of safely without endangering human health or harming the environment. Waste transfer notes and/or waste exemption certificates (if required) will also be completed and retained.
- Designated areas will be identified within which all materials and personnel, including construction compounds, where necessary, will be contained to limit environmental disturbance during construction works. This will include a designated area (if required) for segregation and reuse of waste materials.
- The selection of areas for materials stockpiling will avoid sensitive locations such as road drainage. Stockpiled materials with leachate potential, for example, will be stored away from road drainage to prevent cross-contamination with other materials, wastes, or groundwater.
- Materials will be stored with the appropriate security to prevent loss, theft, or vandalism.
- All temporary road signs and traffic cones will be removed from site on completion of works.
- Wastewater from welfare facilities (if required) will be subject to effluent treatment followed by tanker removal.
- If hazardous substances are used onsite, each substance will be subject to assessment under the Control of Substances Hazardous to Health (COSHH) Regulations 2002. Hazardous substances will also be clearly labelled, and disposed of, in line with their relevant waste regulations. Special waste will also not be mixed with general waste and/or other recyclables.

Noise and vibration

Activities undertaken on site could potentially have some localised and short-term noise impacts in proximity to the works. The road works will, for example, require a range of ancillary plant, vehicles and NRMM to facilitate the deck refurbishment. Noise will be generated by machinery such as carriageway planers and hydro-demolition equipment etc. As a result, there is potential for noise and vibration effects to residential properties within the local area, the closest of which is located approximately 205m northwest of the scheme extents and well screened by woodland and the topography of the surrounding land.

However, the works are not located within a CNMA or CQA, and while they will be completed over 30 nights the aim will be to complete the noisiest works by 23:00. In addition, the residential properties are at least partially screened from the scheme

extents by dense woodland and topography as such perceived noise from the scheme may be somewhat reduced.

Considering the likely sources of noise and vibration, with the nature, duration, size, and scale of the scheme, and with implementation of the mitigation detailed below, it is unlikely that noise and vibration associated with the works will lead to significant impacts, disruption and/or complaints. The proposed scheme is therefore anticipated to result in temporary, minor adverse noise impacts.

Upon completion of the works, no residual impacts are anticipated in relation to noise and vibration.

Noise and vibration mitigation measures:

- The local authority environmental health department will be notified of nighttime working by BEAR Scotland's design engineer.
- Where possible, the noisiest work operations (e.g., cold milling, using breakers (jackhammers), chipping hammers, use of rollers, etc.) will be completed before 23:00.
- If unacceptable noise is emanating from the site the operation will, where possible, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include (a) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) repositioning equipment, (d) changing the method of working etc. Corrective actions will be actioned through the non-conformance reporting procedure, which ensures a root-cause analysis is carried out on each incident. The non-conformance procedure also ensures that appropriate corrective and preventative action measures are agreed and implemented in a timely fashion with all parties, and are recorded and actioned through to closeout, and fully auditable and traceable.
- Ancillary plant, vehicles and NRMM with directional noise characteristics will (where practical) be shut down in intervening periods between site operations.
- The use of paving breakers (jackhammers), chipping hammers, etc. will be avoided (except where there is an overriding justification), and if used will be fitted with mufflers or silencers of the type recommended by the manufacturer.
- Drop heights from vehicles and NRMM will be kept to a minimum to minimise noise when unloading.
- All ancillary plant, vehicles and NRMM used onsite will have been regularly maintained, paying attention to the integrity of silencers and acoustic enclosures.
- All compressors will be 'sound-reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed when in use.

- HGV, site vehicles and NRMM will be switched to the minimum setting required by HSE and, where possible, will utilise 'broadband non-tonal' or 'directional sound reversing' alarms. Speed limits will also be reduced through the works

Population and human health

During construction, activities undertaken on site have the potential to have temporary adverse impacts on local residents and road users. However, TM will be in place at night when traffic levels are at a minimum. As such, no congestion issues are predicted during the proposed construction hours.

As noted above there are two residential properties within 300m of the scheme extents. As such there is potential for impacts to local residents in the form of noise / vibration impacts, visual disturbance and delays due to traffic management. However, providing mitigation measures detailed below, and those listed within the noise and vibration section, are adhered to the impacts are assessed to be somewhat reduced.

Considering the nature, duration, size and scale of the scheme, and with implementation of the mitigation described below, impacts on population and human health are assessed as temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to population and human health.

Population and human health mitigation measures:

- Construction lighting will take into account the need to avoid illuminating surrounding properties to avoid a nuisance at night, and non-essential lighting will be switched off at night.
- Advanced signage will be strategically placed on the trunk road to notify stakeholders of the single lane closure and temporary traffic lights.
- The design engineer will inform the local environmental health officer of the preplanned night works.
- A Traffic Management Plan (TMP), which includes measures to avoid or reduce disruption to road traffic, will be produced in accordance with the Traffic Signs Manual (Department of Transport 2009). The TMP will ensure that there is no severance of community assets, access routes or residential development.
- Where appropriate, a communication strategy (e.g., social media, consultation with local authority and other stakeholders, etc.) will be initiated to keep local residents informed of the proposed working schedule, particularly the times

and durations of noisy construction activities. The communication strategy will also provide a 24-hour contact number for the BEAR Scotland Control Room.

- Journey planning information will be available for drivers online at the trafficscotland.org website. Journey planning information will also be available for drivers online through BEARs social media platforms.

Road drainage and the water environment

During the works, there is potential for temporary adverse impacts on the water environment. Potential changes in water quality e.g., from pollution events (either by accidental spillage of sediments, particulate matter, chemicals, fuels or by mobilisation of these in surface water caused by rain, mobilisation of concrete wash water during hydro-demolition) during works have the potential to have a direct or indirect effect on surrounding waterbodies such as the classified waterbody “Leader Water”.

However, given the restriction of the works to the A68 carriageway, the potential for a direct/ indirect pollution incident to a waterbody is considered to be unlikely e.g., experience gained from BEAR maintenance schemes elsewhere on the network has shown that where standard best working practice is adopted (e.g., adherence to SEPA GPPs, utilisation of drain covers or similar, etc.), water quality is protected.

Considering the nature, duration, size, and scale of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on the road drainage and water environment are assessed as temporary, negligible adverse in magnitude.

Upon completion of the resurfacing works, no residual impacts are anticipated in relation to the road drainage and water environment.

Road drainage and the water environment mitigation measures:

- During hydro-demolition the following will be implemented:
  - Prior to the discharge of any hydro-demolition water authorisation will be granted by SEPA in line with the Water Environment (Control Activities) (Scotland) Regulations 2011. All works will be undertaken in line with the Registration Authorisation. A copy of the authorisation will be kept on site at all times.
  - Prior to works commencing, a bund will be created below the work area to contain the runoff water from the hydro demolition works and allow it to be pumped onto the treatment process. Before the hydro-demolition works commence, clean water will be sprayed into the encapsulated area to check its effectiveness / robustness. The hydro-demolition works will not commence until this is found to be satisfactory.

  - Water from hydro-demolition will be discharged at less than or equal to 10,000 litres ($10m^3$) per day. Any wastewater used daily above 10,000 litres ($10m^3$) will be stored on site and discharged at an appropriate time not exceeding 10,000 litres ($10m^3$) per day.
  - All water to be used onsite will be delivered by bulk tanker and be of potable quality.
  - Once in operation, the waste-water produced will be contained within the encapsulation. Waste-water will be collected in the sump and pumped to a bin using a sub pump positioned within the bund, with a second pump in the bin to transfer the water to the Siltbuster HD Unit (positioned on the bridge) for the treatment phase. The solid waste will be removed manually where at all possible. The solids falling into the encapsulation will be removed by hand, as and when required.
  - Once the waste-water has been pumped onto the bridge deck, it will then undergo a two-phase treatment using the Siltbuster HD Unit, which is specifically designed to treat waste-water from hydro-demolition operations. The system will firstly remove suspended solids to an acceptable level and secondly will neutralise the high pH by using a fully automated CO^2 dosing process to neutralise the alkalinity. Safe estimate target values are: (i) suspended solids – 50 mg/l (50 parts per million), (ii) pH level to be neutral (7 to 9) at discharge.
  - The waste-water that has been treated by the siltbuster will then be disposed of in an appropriate manner. The treated water will be piped from the Siltbuster HD Unit via a series of hoses to roadside gullies, ensuring the gullies do not over-fill and wastewater spills onto the carriageway. The hose will be terminated at the discharge end with a geotextile silt sock providing further filtration (to less than 100 microns), the purpose of which will be to capture any residual sediment.
  - Hydro-demolition works will avoid heavy rainfall periods which could affect the performance of the Siltbuster HD Unit.
- Site operatives will be made aware of the sensitivity of Leader Water.
- If any works are identified that would require entering a waterbody, BEAR Scotland's Environmental Team will be contacted (before works commence) to allow consideration of potential environmental effects.
- Appropriate mitigation measures will be utilised to prevent debris and run-off from entering Leader Water below when deemed required. The abstraction or transfers of water from, discharges to, or the washing of tools in surface waterbodies identified will not be permitted.
- All site personnel will be made aware of site spillage response procedures and in the event of a spill, all works associated with the spill will stop, and the incident reported to the Site Supervisor. Small spills that did not leave the site boundary and are cleaned up without material environmental harm or residual environmental impact would most likely not be required to be notified to SEPA

or other authorities. However, all such incidents will be recorded and reported to BEAR Scotland's Environmental Team. In the event of a 'serious incident', SEPA will be notified without delay. Such notification will include: (i) the time and duration of the incident, (ii) a description of the cause of the incident, (iii) any effect on the environment as a result of the incident, and (iv) any measures taken to minimise or mitigate the effect and prevent a recurrence.

- All waste, vehicles, ancillary plant, NRMM and fuels will be stored in the compound(s) or laydown area and will be secured and located, if space is available, at least 10m from drainage entry points and Leader Water in order to comply with GPP 5 'works and maintenance in or near water'. Refuelling will only be undertaken at designated refuelling areas (e.g., on hardstanding, with spill kits available, and >10m from any drainage entry points and Leader Water, where practicable). Spill kits will also be available within all site vehicles and spill kits will be replenished onsite when required. Only designated trained and competent operatives will be authorised to refuel plant. Generators, and other ancillary plant and NRMM, where there is a risk of leakage of oil or fuel, will have internal bunding or will have a secondary containment system placed beneath them that meets 110% capacity requirements. Containment systems will also be emptied regularly. All waste, vehicles, ancillary plant, NRMM and fuels will also be stored in a manner that ensures they are protected from damage by collision or extremes of weather.
- Regular visual pollution inspections of the designated laydown area and work site (particularly near road drainage entry points) will be conducted (e.g., site walkover by engineer or Site Supervisor), especially during periods of heavy rain.
- All vehicles and NRMM onsite will have been regularly maintained, paying attention to the integrity of oil tanks, coolant systems, gaskets etc. A checklist will be present to make sure that the checks have been carried out.

Climate

BEAR Scotland, working on behalf of Transport Scotland, undertake carbon monitoring of major projects and operational activities. Emissions from activities are recorded using Transport Scotland's Carbon Management System. BEAR Scotland also undertakes resource efficiency activities to manage and reduce emissions contributing to climate change. The carriageway resurfacing works will also extend the maintenance intervals required for future works. In doing so, the service life of the trunk road is also extended. During works there is potential for impacts as a result of the emission of greenhouse gases through the use of equipment, vehicles, and NRMM, material use and production, and transportation of material/waste. However, considering the nature, duration, size and scale of the scheme, and the mitigation detailed below, the risk of significant impacts to climate are considered to

be negligible adverse in magnitude. Upon completion of the proposed scheme no residual impacts are anticipated on the climate.

Climate mitigation measures:

- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gas emitted as part of the works.
- BEAR Scotland will adhere to its Carbon Management Policy.
- Where possible, waste will be disposed of at local waste management facilities.

Vulnerability of the project to risks

There will be no change to the likelihood of flooding on the A68 within the scheme extents upon completion of the works.

Works are restricted to areas of made ground on the A68 carriageway surface, with access to the scheme gained via the A68 mainline. TM will involve alternating lane closures with the potential for a full road closure if required over a short duration. If required, southbound traffic will be diverted onto the A697 at Carfraemill Roundabout, then onto the A6089 at Whiteburn, then the A6105 at Gordon, and finally returning to the A68 at Earlston. Northbound traffic will follow the inverse route. As such, the proposed works' impacts on road traffic accidents are assessed to be of negligible magnitude.

A Site Environmental Management Plan (SEMP) will be produced by BEAR Scotland which sets out a framework to reduce the risk of adverse impacts from construction activities on sensitive environmental receptors. The Contractor will comply with all conditions of the SEMP during works and may be subject to audit throughout the contract.

Considering the above, the vulnerability of the project to of major accidents and disasters is considered to be low.

Assessment cumulative effects

The proposed works are not anticipated to result in significant environmental effects. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

A search of the Scottish Borders Council Planning Portal has identified no planning applications within 300m of the scheme extents within the last two years.

Additionally, a search of the Scottish Road Works Commissioner's website (map search) has identified that a separate deck refurbishment scheme, A68 Townfoot, is expected to be undertaken at the same time as the A68 Galadean. However, the A68 Townfoot works are located approx. 25km south of the scheme and as such are not expected to result in any cumulative impacts.

Assessments of the environmental effects

The A68 Galadean bridge scheme spans the River Tweed SAC and lies within the buffer zone for the qualifying species of Fala Flow SPA and Ramsar Site and Greenlaw Moor SPA and Ramsar Site and as such, a HRA has been undertaken. The HRA ruled out the potential for LSE on Fala Flow SPA and Ramsar Site and Greenlaw Moor SPA and Ramsar Site and has assessed that there is sufficient information and assessment evidence to conclude that the proposed scheme, with the implementation of mitigation and control measures, will not result in any AESI to the River Tweed SAC. Consultation will be undertaken with Transport Scotland and NatureScot with regards to the outcome of the AA.

As detailed in the Description of Main Environmental Impacts and Proposed Mitigation section, there are no significant effects anticipated on any environmental receptors as a result of the proposed works.

Statement of case in support of a Determination that a statutory EIA is not required

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the completed works (together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction) are situated in whole or in part in the River Tweed SAC which is a sensitive area within the meaning of regulation 2(1) of the Environmental Impact Assessment (Scotland) Regulations 1999.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment is required under the Roads (Scotland) Act 1984 (as amended by The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017). Screening using Annex III criteria, reference to consultations undertaken and review of available information has not identified the need for a statutory EIA.

The project will not have significant effects on the environment by virtue of factors such as:

Characteristics of the scheme:

- Works are restricted to like-for-like refurbishment of the bridge deck at the A68 Galadean Bridge
- The works will improve safety on the bridge and protect against future deterioration of the structure. Consequently, carrying out these works now will reduce the likelihood of a failure in the bridge structure requiring major works at a future date. This in turn will minimize the extent of work required on the A68 Galadean Bridge. In doing so, the service life of the structure is also extended.
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- The risk of major accidents or disasters is considered to be low.
- Any potential impacts of the works are expected to be temporary, short-term, not significant, and limited to the construction phase.

Location of the scheme:

- The scheme spans the River Tweed SAC. However, a HRA has been undertaken which has confirmed that the works will not result in AESI on the qualifying features of the SAC.
- The scheme does not lie within any sites of historical, cultural, or archaeological significance.
- The scheme is not located within any areas designated for landscape interests.
- Land use will not change as a result of the works.
- The works do not require any private land acquisition.
- The scheme does not lie within any sites designated for geology or soils.
- The scheme is not located within a densely populated area.

Characteristics of potential impacts of the scheme:

- The waste hierarchy will be followed to reduce waste to landfill.
- Works are programmed to take approximately thirty nights to complete on a rolling programme, with the aim being to complete the noisiest works by 23:00
- With good practice pollution prevention measures implemented onsite, there is a negligible risk of a pollution event e.g., compliance with the SEMP.

Annex A

"sensitive area" means any of the following:

- land notified under sections 3(1) or 5(1) (sites of special scientific interest) of the Nature Conservation (Scotland) Act 2004
- land in respect of which an order has been made under section 23 (nature conservation orders) of the Nature Conservation (Scotland) Act 2004
- a European site within the meaning of regulation 10 of the Conservation (Natural Habitats, &c.) Regulations 1994
- a property appearing in the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage
- a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979
- a National Scenic Area as designated by a direction made by the Scottish Ministers under section 263A of the Town and Country Planning (Scotland) Act 1997
- an area designated as a National Park by a designation order made by the Scottish Ministers under section 6(1) of the National Parks (Scotland) Act 2000.

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